

**INTERIM GUIDELINES AND PROCEDURES  
FOR DECONTAMINATION AND CLEANUP OF ILLEGAL CLANDESTINE  
LABORATORY METHAMPHETAMINE MANUFACTURING SITES  
(ACT 170) (HB2039 SD2CD1)**

**FOR THE  
HAWAII DEPARTMENT OF HEALTH  
OFFICE OF HAZARD EVALUATION AND EMERGENCY RESPONSE**

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**State of Hawaii  
Department of Health  
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**HAWAII STATE DEPARTMENT OF HEALTH**  
HEALTHY PEOPLE - HEALTHY COMMUNITIES - HEALTHY ISLANDS

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**LIST OF ACRONYMS**

ASTM	American Society for Testing and Materials
CDL	Clandestine drug laboratory
CDLP	Clandestine Drug Laboratory Program
CDPHE	Colorado Department of Public Health and Environment
CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
Clan	Clandestine
CLRT	Clandestine Laboratory Response Team
CLEO	Chief Law Enforcement Officer
cm <sup>2</sup>	Square centimeter
COC	Contaminant of Concern
COPS	Community Oriented Policing Services
DEA	United States Drug Enforcement Administration
DHS	Department of Human Services
EAL	Environmental Action Level
EMS	Emergency medical services
EPA	United States Environmental Protection Agency
EPIC	El Paso Intelligence Center
FSP	Field Sampling Plan
FY	Fiscal year
HAR	Hawaii Administrative Rules
HARP	Hazard Assessment and Recognition Plan
HASP	Health and Safety Plan
Hazmat	Hazardous materials
HAZWOPER	Hazardous Waste Operations and Emergency Response
HDOH	State of Hawaii Department of Health
HEER	Hazard Evaluation and Emergency Response
HI	Hazard Index
HRS	Hawaii Revised Statutes
HVAC	Heating, ventilation, and air conditioning
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
Meth	Methamphetamine
mg/kg	Milligrams per kilogram
mg/m <sup>3</sup>	Milligrams per cubic meter
NFA	No further action
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
P2P	Phenyl-2-propanone
PID	Photoionization detector
PPE	Personal protective equipment

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ppm	Parts per million
QAPP	Quality Assurance Project Plan
SCP	State Contingency Plan
SOP	Standard operation procedures
SSO	Site safety officer
TCLP	Toxicity Characteristic Leachate Procedure
TGM	Technical Guidance Manual
URL	Uniform Resource Locator
VOC	Volatile organic compound
WSIN	Western State Information Network
WP	Work Plan
µg/L	Micrograms per liter
µg/ft <sup>2</sup>	Micrograms per square foot

## SECTION 1: INTRODUCTION

Act 170 (Relating to Decontamination of Illegal Drug Manufacturing Sites) was signed into law on June 5, 2006. The act calls for statewide procedures to properly decontaminate and clean up illegal clandestine (clan) methamphetamine (meth) manufacturing sites, as well as to protect the State's first responder community.

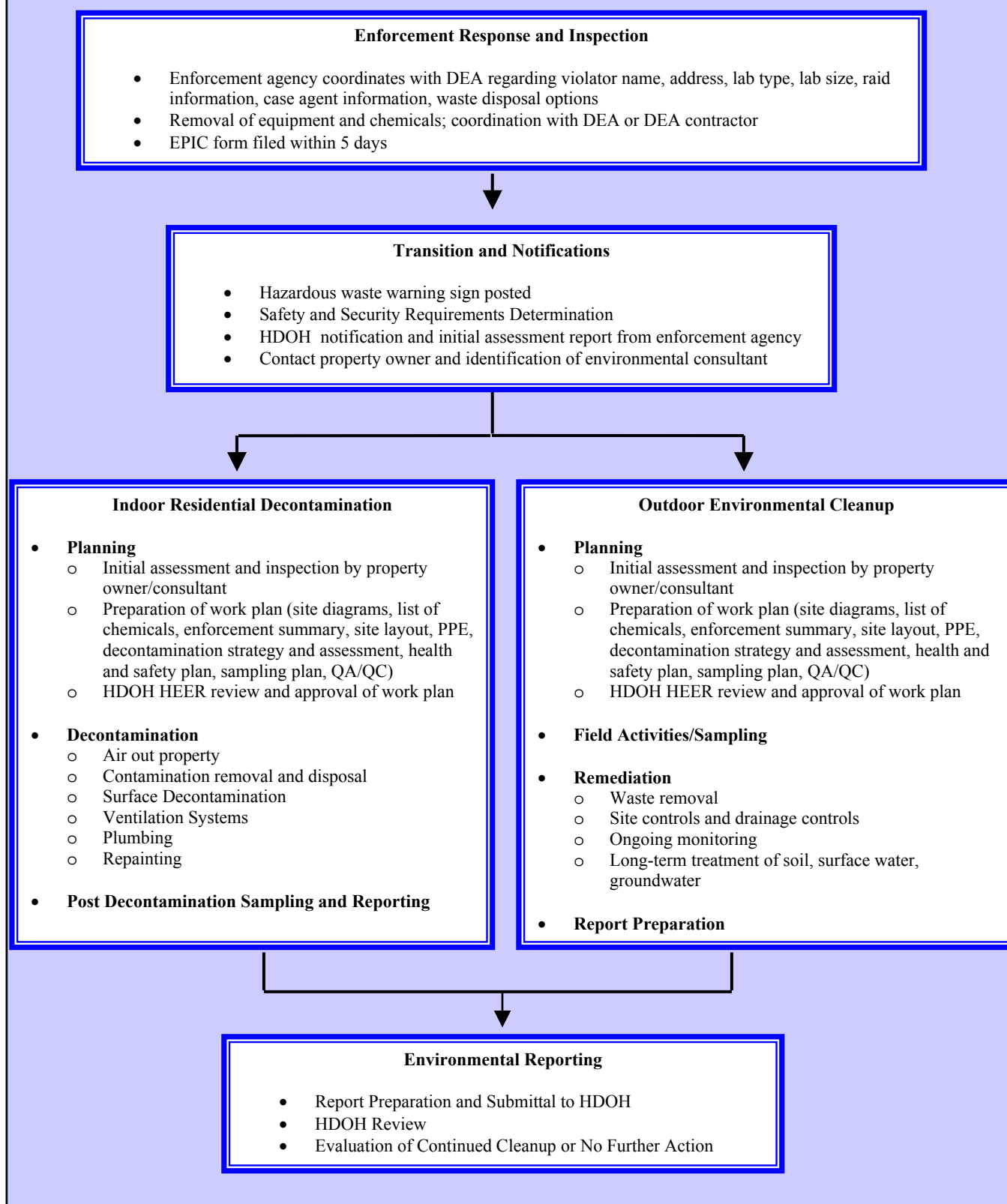
As part of the implementation of Act 170, this report has been developed to help the State of Hawaii Department of Health (HDOH) establish procedures and guidelines for decontamination and cleanup of illegal meth manufacturing sites. These guidelines and procedures apply to properties that have been used to manufacture meth and its precursor hazardous materials. This document integrates information about other states' procedures and provisions with information about procedures in the State of Hawaii obtained through collaboration with Hawaii Police and law enforcement agencies. This document presumes that current state statutes and rules shall be used to the extent feasible in Hazard Evaluation and Emergency Response (HEER) Office oversight and implementation of guidelines and procedures described herein.

This document recognizes the importance of two broad efforts for managing problems associated with illegal clan meth manufacturing sites: (1) enforcement and (2) indoor and outdoor environmental cleanup. It recognizes that distinct responsibilities of agencies managing each effort are clear, but it also seeks to clarify agency responsibilities in the transition between these two efforts (see Section 4).

A summary of the activities presented in this document is included in Figure 1, Interim Guidelines Summary.

**Important:** Local, agency-specific procedures may be applied if these are equally or more protective than the statewide procedures described in this manual.

**Figure 1**  
**Interim Guidelines Summary**



## **SECTION 2: ENFORCEMENT RESPONSE AND INSPECTION**

Investigations and eventual cleanup of these clan meth laboratories must meet special requirements because these sites pose significant health risks to the public safety personnel who may be exposed to them. Occupational Safety and Health Administration (OSHA) and certain other federal and state guidelines relating to clan laboratories must be followed.

This document does not attempt to restate local protocols established by various police departments throughout the State of Hawaii for managing enforcement activities associated with illegal clan meth laboratories. Its authors recognize the priority of local enforcement agencies to establish and implement these standards. Moreover, we understand that these local protocols are shared and well known among the various agencies, and that practice in the field is well established among the personnel within each agency. Thus, enforcement response standards described in this document are supplemental to those developed by local agencies.

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**1. Purpose**

To detect and provide for safe dismantling and disposal of clan meth laboratories by properly trained and equipped specialists in the State of Hawaii. All personnel shall ensure the safest possible environment by avoiding and/or reducing chemical exposure to known acceptable levels (acceptable levels in accordance with state and federal [including OSHA] guidelines).

**2. Definitions**

- A. **Case Agent** – The primary investigator assigned to the case and who has the responsibility of presenting the case to the prosecuting attorney.
- B. **Certification** – The documented and successful completion of an approved, clan laboratory hazardous waste operations and emergency response safety training program, and completion of on-the-job training. Note: The Hazardous Waste Operations and Emergency Response (HAZWOPER) standard/regulation under 29 *Code of Federal Regulations* (CFR) 1910.120 has distinct training and operational requirements for specific groups of workers. All emergency responders and hazardous site workers shall “certify” themselves based on their job duties and the requirements of this regulation.
- C. **Clandestine Drug Laboratory (CDL)** – Any structure, vehicle, or container where narcotics or dangerous drugs, as defined by Hawaii Revised Statutes (HRS), are manufactured, purified, synthesized, reconstituted, or converted contrary to law.
- D. **Chief Law Enforcement Officer (CLEO)** – The agency law enforcement officer in charge of clan meth laboratory operations.
- E. **Clandestine Laboratory Response Team (CLRT)** – A specially trained and equipped unit designated to respond to clan drug laboratories.
- F. **El Paso Intelligence Center (EPIC) U.S. Drug Enforcement Administration (DEA) Form 612** – This is a clan laboratory reporting form. El Paso is the national collection point for all forms, and the information is maintained in a database.
- G. **Gas** – Any chemical in its gaseous state (such as anhydrous ammonia or hydrogen chloride). Not to be confused with "gas," a common term for gasoline.
- H. **Hazard Assessment and Recognition Plan (HARP)** – A form developed to track agent involvement in clan laboratory scenes that contains pertinent information regarding the assessment of a scene. This form tracks responding personnel, assignments, hazardous assessment findings, lab assessment, medical treatment (if necessary), and chemical exposure (if exposure occurs). This document is required for all clan meth sites as per 29 CFR 1910.120(b)(4).
- I. **Hazardous Chemical** – Any gas, liquid, or solid chemical or drug that can pose a serious safety threat to an employee when improperly handled, packaged, or stored.
- J. **Hazmat Response Team** – A recognized team of experts or specialists in the area of hazardous waste that handles cleanup of hazardous waste generated or left behind in a clan laboratory. This team must have the appropriate training required by OSHA, the United States Environmental Protection Agency (EPA), and its employer.

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- K. **On-Scene Supervisor** – Any designee of the enforcement agency in charge; or supervisor, sergeant, or officer of highest rank on scene.
- L. **Representative Sample** – Any chemical or drug in a liquid, solid, or gaseous state with sufficient quantity to measure by the approved methods within the limits of acceptable precision and accuracy. Meeting these criteria, the sample is expected to fulfill the purpose for obtaining the sample.
- M. **Site Safety Officer (SSO)** – The person (responsible to the employer) with authority and knowledge necessary to implement the site safety and health plan, and verify compliance with applicable safety and health requirements under OSHA 29 CFR 1910.120(a)(3). The SSO ensures individuals comply with established health and safety plans at all times at clan lab scenes, maintains health and safety plans, and maintains equipment used at clan lab scenes.
- N. **Solid Material Suspected to Contain Drugs** – Any powder, resin, lumpy material, or plant material usually found to contain controlled substances or abused drugs.
- O. **Unacceptable Substance** – Any extremely hazardous chemical that cannot be safely handled, packaged, transported, stored, or analyzed without use of extraordinary means beyond the resources available to law enforcement personnel.
- P. **Unapproved Container** – Any bulk container containing any amount of chemicals used to manufacture or process drugs. Also includes any container or glass vial not meeting specifications of an approved container.
- Q. **Western States Information Network (WSIN)** - The Western States Information Network is a member of the Department of Justice's Regional Information Sharing Service (RISS) Network.

**3. Clandestine Methamphetamine Laboratory Personal Safety Standards**

- A. The purpose of the Clandestine Methamphetamine Safety Standards is to outline the safety responsibilities of state and local law enforcement agencies. Ultimately, the responsibility of all personnel safety involved in the investigation of clan laboratories falls upon each state and local agency.
- B. Other first responders such as fire, emergency medical services (EMS), environmental regulators, code enforcement officers, probation officers, public safety personnel, and child protective services are also at risk. Guidelines for protection of these personnel should be developed by their respective agencies.
- C. State and local law enforcement agency safety program responsibilities outline:
  - 1. **Organization and Responsibilities:** At a minimum, one individual shall be responsible for the overall management, integration, and coordination of the Clandestine Drug Laboratory Program (CDLP) and shall have final authority for participants in all CDL operations. A SSO shall also be assigned during all phases of operational procedures.
  - 2. **Operational Procedures:** At a minimum, personnel will be protected in accordance with OSHA standards as contained in 29 CFR 1910.120. OSHA

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safety standards shall be a primary focus in identifying all operational procedures including:

- a. The planning phase.
  - b. The assessment phase.
  - c. The processing phase.
  - d. The exit and decontamination phase.
3. Certification and Training: At a minimum, each agency is responsible for the certification of its respective employees. Our understanding is that each agency shall document the successful completion of an approved, clan laboratory hazardous waste operations and emergency response safety training program, and completion of on-the-job training.

Note: The HAZWOPER standard/regulation under 29 CFR 1910.120 has distinct training and operational requirements for three groups of workers. All emergency responders and hazardous site workers shall “certify” themselves based on their job duties and the requirements of this regulation.

4. Medical Surveillance Program: At a minimum, each agency shall comply with the OSHA recommendations for medical surveillance as stated in 29 CFR 1910.120 (f).
5. Respiratory Protection Program: At a minimum, each agency shall comply with 29 CFR 1910.134, the OSHA respiratory protection standard.
6. Equipment Maintenance: At a minimum, each agency shall maintain all general safety equipment (including but not limited to personal protective equipment [PPE], decontamination, and air monitoring) for the clan laboratory response program. Each agency is responsible to assure that equipment staged within its premises is maintained in a serviceable condition at all times, and is maintained in accordance with manufacturers’ recommendations and current OSHA guidelines.

### **SECTION 3: ENFORCEMENT HAZARDOUS WASTE DISPOSAL**

The DEA's Hazardous Waste Disposal Program was established in 1988 to assist DEA's Special Agents in management of the chemicals, waste, and contaminated equipment seized at clan drug laboratories. The DEA began receiving funding from the Community Oriented Policing Services (COPS) program in 1998, and DEA appropriated funds in FY 1999 to support cleanups of clan drug laboratories seized by state and local law enforcement.

EPA regulations require the agency to ensure that all hazardous waste materials are safely removed from the site when a federal, state, or local agency seizes a clan meth laboratory. The DEA awarded the first private-sector contracts in 1991 for hazardous waste cleanup and disposal to facilitate removal of these materials. This program promotes the safety of law enforcement personnel and the public by using qualified companies with specialized training and equipment to remove hazardous waste seized at clan drug laboratories. These contractors now provide response services to DEA, as well as state and local law enforcement officials nationwide. These contracts serve communities by removing the source-chemicals that may pose threats to the public, which also helps to protect the environment.

The DEA joined the Kentucky State Police in 2004 to further reduce the cost of lab cleanups by establishing a pilot clan-lab "container program" in Kentucky. The program allows trained Kentucky law enforcement personnel to safely package and transport hazardous waste from the clan laboratory sites to a centralized secure container that meets all hazardous waste storage requirements. The waste is subsequently kept in the container until it can be removed by a DEA contractor. The container program has streamlined the laboratory cleanup process by enabling law enforcement officials to manage small quantities of seized chemicals more quickly and efficiently. This type of container program will be proposed for Hawaii, and its adoption is a good possibility because it is within federal and Hawaii state regulations.

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**1. Purpose**

To establish responsibilities and procedures relating to the safe and timely disposal of chemicals found at clan meth laboratories.

**2. Policy**

Provide for the safe disposal of materials and chemicals found at clan meth laboratories by implementing properly defined methods followed by properly trained and equipped specialists.

**3. Hazardous Materials**

**A. Hazardous Materials Notification**

Every effort should be made to notify DEA of the existence of a clandestine meth "operation" to participate in the investigation. If DEA is able to participate in the investigation DEA will coordinate with a hazardous materials contractor for disposal of hazardous materials. The Hawaii State Officer shall provide the following information to the DEA representative:

1. Violator name (if known).
2. Address or location of suspected lab site.
3. Lab type (ephedrine, red phosphorus, etc.).
4. Estimate of lab size.
5. Anticipated raid date/time.
6. Contact telephone numbers of case agent.

- A.** If DEA is unable to participate in the investigation, the Hawaii State Officer will coordinate with the hazardous materials contractor for the cleanup of the chemicals and materials to prevent any further manufacturing opportunities. The Hawaii State Officer is expected to arrange for contractors to dispose of all hazardous materials associated with the lab.

When a DEA representative cannot participate, the officer in charge will contact the contractor as soon as practical after execution of the raid, and should be prepared to provide information to the contractor concerning the lab site. Needed information includes lab location and approximate lab size (i.e., number of gallons of liquid waste on site, number of contaminated articles, amount of unidentified chemicals, etc.). Photographs and written descriptions of all materials to be disposed of by the contractor shall be made and included in the case file.

**B. Hazardous Materials – Sampling, Collection, and Disposal**

1. While processing a clan laboratory, the designated SSO consults with the DEA hazardous waste contractor in determining the hazard status of the chemicals encountered.

2. Chemicals located at the site may be sampled for analysis and evidentiary purposes. However, if in the opinion of the SSO, the sampling and retention of some hazardous material may pose an imminent or future danger, the substances will not be sampled or retained. Materials remaining after sampling, and materials not sampled for safety or other reasons, will be rendered to the disposal contractor for proper packing and preparation for transport and destruction.

**SECTION 4: TRANSITION BETWEEN ENFORCEMENT AND ENVIRONMENTAL RESPONSE**

The primary focus of this section is to provide standard procedures for the transition between responsibilities/activities of law enforcement personnel and those of environmental response personnel preceding environmental response and cleanup actions.

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**1. Purpose**

To ensure standard practices and necessary actions for the transition between responsibilities/activities of law enforcement personnel and those of environmental cleanup personnel—including notification of environmental cleanup personnel by law enforcement personnel.

**2. Reporting Requirements**

The case agent shall complete the EPIC National Clandestine Laboratory Seizure Report within five days of the seizure of a CDL. This form shall be submitted to the Western State Information Network (WSIN). A copy of the form shall be maintained by the WSIN, and the information shall be forwarded by the WSIN to EPIC to meet federal reporting standards. The case agent shall maintain a copy of the report in the case file.

**3. Post-Raid Notifications**

After removal of the laboratory equipment and chemicals, in the public interest, Hawaii law enforcement personnel will place a notification (i.e., Hazardous Material Warning Sign) in a conspicuous location to warn concerned parties that a clan laboratory site may pose a health hazard. In addition, the HEER Office is notified by the law enforcement officer's supervisor (e.g., CLEO) orally and in writing of the status of the site (see Appendix B). The CLEO must provide a complete report to the HEER Office, including the following:

- A. Diagrams of the site.
- B. Areas where chemical reactions (i.e., cooking) occurred.
- C. Areas where chemicals and equipment were stored.
- D. Areas where chemicals and waste were disposed of.
- E. Quantities and types of chemicals found and confiscated on site.
- F. Method used to produce the meth.

Copies of all written correspondence are retained in the case file.

The HEER Office contact number is 808-586-4249. The HEER Office record as received from the CLEO is the same as for all other notifications. The information shall be recorded by the HEER Office contact and made a part of the HEER Office "site database." The property owner will be notified when the enforcement action has been completed and in coordination with the Department of Health.

## SECTION 5: INDOOR RESIDENTIAL DECONTAMINATION

The Contaminants of Concern (COC) resulting from the manufacturing process may be in the form of corrosive waste sludge and/or residues of a variety of volatile organic compounds (VOC), metals, acids, and bases. Some chemicals used in the process include but are not limited to hydriodic acid, hydrochloric acid, sulfuric acid, sodium hydroxide, red phosphorus, hydrogen peroxide, naphtha, freon, chloroform, acetone, benzene, toluene, iodine, ethyl ether, acetic acid, methyl-ethyl-ketone, hypophosphorus acid, yellow phosphorus, anhydrous ammonia, lithium, sodium, isopropyl alcohol, ethyl alcohol, and methanol. The residual COCs may be contained in or on absorbent materials; ceiling tiles; walls; floors; counter tops; appliances; children's toys; linen; drapes; furniture; mattresses; clothing; soil; wastewater systems; heating, ventilation, and air conditioning (HVAC) systems; range vent hoods, etc.

The following material is consistent with the HEER Office Technical Guidance Manual (TGM) and the State Contingency Plan (SCP) as described in Hawaii Administrative Rules (HAR) Chapter 11-451, authorized by HRS 128D, the Environmental Response Law.

**Note: General oversight for the decontamination, cleanup and sampling of these sites will be provided by HDOH when interacting with contractors or property owners to ensure that the cleanup process meets all state requirements.**

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**1. Purpose**

To establish procedures for decontamination of clan meth laboratories.

**2. Policy**

Provide for complete and safe decontamination of all indoor areas contaminated by a clan meth laboratory so that the property is safe for habitation and meets all remediation goals set by the HEER Office TGM and the SCP, as described in HAR Chapter 11-451, authorized by HRS 128D, the Environmental Response Law.

In general, the level of effort should be balanced to meet the need of the situation. For example, samples (in number, type, and location) will be collected sufficient to characterize the distribution of all contamination on all areas that could expose humans to the contamination under normal circumstances. Care must be taken to avoid too few samples (i.e., insufficient effort) or too many samples (i.e., redundant efforts); however, all potentially dangerous conditions must be evaluated. Basically, the level of effort can be attuned to the situation.

**3. Pre-decontamination Procedures**

A. Prior to any decontamination actions by a private contractor, the following activities must have occurred:

1. All criminal investigations of the crime scene have been completed by the CLRT, and the HEER Office personnel have obtained permission to enter the property from the designated case agent.
2. All lab process-related chemicals, waste, and paraphernalia have been removed and documented by law enforcement (generally a DEA response) and its response contractors.
3. Initial Notification to the HEER Office has been made by the CLEO of the Hawaii agency in charge of enforcement by a written report describing the general situation of the site buildings and nature of contamination (e.g., complete report listed in Section 4, Post-Raid Notifications).
4. The property owner in coordination with the HEER Office has contacted an environmental company that specializes in cleanup of contaminated sites.
5. The initial assessment and inspection of the quarantined property by the property owner's cleanup contractor (with HDOH oversight) has been performed, appropriate PPE for cleanup workers has been selected, and the Hazard Assessment and Scope of Work have been completed and communicated to cleanup workers (e.g., Site Safety Plan or Health and Safety Plan [HASP]).
  - a. The initial assessment and inspection should have included diagrams of the site, lists of chemicals and equipment confiscated from the site, and other documents generated by law enforcement personnel.
  - b. An initial walk through has revealed the physical layout of the site and has enabled the property owner's contractor to gather information about

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the locations and descriptions of interior surfaces and furnishings, and to identify and document visible signs of contamination.

- c. The following areas should have been inspected and information gathered based on law enforcement reports (see Section 4, III: Post Raid Notifications).
- B. Once the preceding procedures have been completed, the contractor must provide a general description (i.e., a work plan [WP]) of where samples are to be collected and how many samples will be collected. The WP lists the contaminants suspected, the methods for analysis of the samples, and the quality assurance and quality control approaches that will be appropriate for this effort (including laboratory data sheets). The WP must be presented to the HEER Office for approval prior to the start of field work.
  - **Note: All proposed field work must be accomplished with HDOH oversight.**

#### 4. Decontamination

- A. Airing out the property.

The property must be aired out for 48 to 72 hours by the cleanup contractor before decontamination. Good ventilation should be continued throughout the property's decontamination. To promote volatilization (dissolving into the air) of some chemicals, windows and doors may be closed and the temperature inside the home increased to approximately 85 to 90 degrees Fahrenheit for two to three days. After decontamination and heating is complete, the property should be aired out for three to five days to allow any volatiles to disperse from the house. Open all windows and set up exhaust fans to circulate air out of the house. During this time, the property should remain off limits unless it is necessary to make short visits. After the decontamination and final three to five days of airing out, the property should be checked for re-staining and odors, which would indicate that the initial cleaning was not successful—if these reappear, more extensive steps will be necessary to complete the decontamination process.

- B. Contamination removal and disposal.

Vaporous contaminants can spread and be absorbed by nearby materials. Spilled chemicals, supplies, and equipment can further contaminate non-lab items. Items visibly contaminated should be double bagged, removed from the property, and disposed of in a local landfill. Any absorbent materials such as carpet and pad, drapes, clothing, etc., can accumulate vapors, dust, and powder from the chemicals involved in the manufacturing process. These materials should be disposed of, especially if an odor or discoloration is present.

Syringes or blood-stained materials should be handled carefully to avoid accidental pokes. Syringes can be placed in an empty 2-liter bottle and disposed of at the local municipal solid waste landfill. If you discover blood-stained items, contact your local health department for advice on disposal. Blood or objects contaminated by blood or other body fluids must be handled and disposed of as biohazards.

C. Surfaces.

Normal household cleaning methods and products should remove contamination. Proper PPE should be worn during all decontamination procedures as described in the initial assessment. Again, ventilation of the property should be continued throughout the cleaning process.

Surfaces such as walls, counters, floors, and ceilings that are porous can also hold contamination. Cleaning these areas is very important because people may come in frequent contact with these surfaces through skin, food preparation, etc.

If a surface (wallboard, floor coverings, or counters) has visible contamination or staining, a complete removal and replacement of that surface section is recommended. If this is not possible, intensive cleaning followed by application of a physical barrier such as paint or epoxy is recommended. These areas should be monitored and the barrier maintained to assure that the contamination is contained.

D. Ventilation systems.

Ventilation systems (heating, air conditioning) tend to collect fumes and dust and redistribute them throughout a home. Replace all of the air filters in the system, remove and clean vents, clean the surfaces near system inlets and outlets, and clean the system's duct work.

E. Plumbing.

Waste products generated during meth manufacturing are often disposed of along the sides of roads or in yards, but more commonly are dumped down sinks, drains, and toilets. These waste products can collect in drains, traps, and septic tanks and give off fumes. If a strong chemical odor is coming from household plumbing, do not attempt to address the problem yourself; rather, contact a plumbing contractor or the local health department for professional assistance. Be sure to notify the plumber of the suspected chemical problem to ensure the plumber(s) wear the proper protective gear.

F. Repainting.

When a surface has been cleaned, painting that surface should be considered, especially in areas where contamination was found or suspected. If any contamination remains that cleaning did not remove, painting the surface puts a barrier between the contamination and anyone who may come in contact with those surfaces. Even on areas that people do not normally touch, painting will cover up and "lock" the contamination onto the surface, reducing the chances that it would be released into the air.

**5. Post-decontamination Sampling**

- A. The amount of post-cleanup sampling will depend on the levels of contamination and the methods used in the process of making the meth. If the phenyl-2-propanone [P2P] method was used, testing should include airborne mercury and lead, and surface sampling for lead. Wipe sampling protocols are based on the OSHA Technical Manual and the Tennessee Department of Environment and Conservation methods used for sampling (see Appendix C). In case of moderate to heavy contamination, indoor air should be field screened for VOCs before and after cleaning.

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- B. The recommended indoor air exposure limits for selected chemical compounds associated with meth labs are listed in Table 1 below. No health-based exposure limits for meth have been established, but widely accepted remediation standards listed below should be used.

Standards of Cleanliness

1. **Methamphetamine:** Shall not exceed 0.1 micrograms/100 square centimeters.
2. **VOCs:** Shall not exceed 1 part per million (ppm) total hydrocarbons and VOCs in air under normal inhabitable ventilation conditions.

**Mercury\*:** Shall not exceed 50 nanograms per cubic meter of air under normal inhabitable ventilation conditions.

**Lead\*:** Shall not exceed 40 micrograms per square foot.

\* If the P2P process was not used, these standards do not apply.

**Table 1**

**Recommended Indoor Air Exposure Limits for Selected Chemical Compounds  
Associated with Clandestine Methamphetamine Laboratories**

Compound	CDPHE Risk-Based Concentration <sup>a</sup>
Acetone	0.15 ppm (0.35 mg/m <sup>3</sup> )
Ammonia	0.14 ppm (0.1 mg/m <sup>3</sup> )
Ammonium hydroxide	0.025 ppm (0.036 mg/m <sup>3</sup> )
Benzene	0.00009 ppm ( 0.0003 mg/m <sup>3</sup> )
Chloroform	0.00002 ppm ( 0.00009 mg/m <sup>3</sup> )
Ethyl ether	0.23 ppm (0.7 mg/m <sup>3</sup> )
Ethanol	1 ppm (1.9 mg/m <sup>3</sup> )
Formic acid	0.005 ppm (0.009 mg/m <sup>3</sup> )
Glacial acetic acid	0.01 ppm (0.025 mg/m <sup>3</sup> )
Hydrochloric acid	0.013 ppm (0.02 mg/m <sup>3</sup> )
Iodine	0.0001 ppm (0.001 mg/m <sup>3</sup> )
Methanol	0.2 ppm (0.26 mg/m <sup>3</sup> )
Methylene chloride	0.0014 ppm ( 0.0047 mg/m <sup>3</sup> )
Methyl amine	0.01 ppm (0.012 mg/m <sup>3</sup> )
Methyl ethyl ketone	0.34 ppm (1 mg/m <sup>3</sup> )
Naphtha	0.1 ppm (0.35 mg/m <sup>3</sup> )
Nitroethane	0.1 ppm (0.31 mg/m <sup>3</sup> )
Petroleum spirit	0.1 ppm (0.35 mg/m <sup>3</sup> )
Phosphoric acid	0.0025 ppm (0.01 mg/m <sup>3</sup> )
Potassium chromate	0.0000001 ppm (0.000001 mg/m <sup>3</sup> )
Potassium dichromate	0.000004 ppm (0.00005 mg/m <sup>3</sup> )
Sodium chromate	0.000008 ppm (0.00005 mg/m <sup>3</sup> )
Sodium dichromate	0.0047 ppm (0.05 mg/m <sup>3</sup> )
Sodium hydroxide	0.0012 ppm (0.002 mg/m <sup>3</sup> )
Sulfuric acid	0.0003 ppm (0.001 mg/m <sup>3</sup> )

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<b>Compound</b>	<b>CDPHE Risk-Based Concentration<sup>a</sup></b>
Toluene	0.11 ppm (0.4 mg/m <sup>3</sup> )
Lead <sup>b</sup>	0.0002 ppm (0.0015 mg/m <sup>3</sup> )
Lead <sup>b</sup> (wipe sample)	40 µg/ft <sup>2</sup>
Mercury <sup>b</sup>	0.000037 ppm (0.0003 mg/m <sup>3</sup> )
Total VOCs	1 ppm

**Notes:**

<sup>a</sup> Assumes exposure 24 hours/day, 350 days/year, for 30 years; 1x10<sup>-6</sup> risk and HI<1; mg/m<sup>3</sup> concentrations.  
<sup>b</sup> Associated with phenyl-2-propanone (P2P) method only.

**CDPHE** Colorado Department of Public Health and Environment

**HI** Hazard Index

**ppm** Parts per million

**mg/m<sup>3</sup>** Milligrams per cubic meter

**µg/ft<sup>2</sup>** Micrograms per square foot

**VOC** Volatile organic compound

**C. Analytical Methodology**

The current EPA analytical method used to detect methamphetamine is 8270C-Modified. For lead, the method is EPA Method 6020. Portable analyzers with gold film absorption systems are available for mercury vapor detection. The HDOH recognizes that science and technology are constantly refining analytical procedures and instrumentation. Therefore, any proven and defensible analytical methodology/technology that has a detection level lower than the “Standards of Cleanliness” numbers can be employed. These alternate analytical methods must be thoroughly documented to ensure that data results are defensible.

Less technical methods are also useful. Normal visual acuity can be used for determining if items are stained or discolored. Spray starch or sometimes water can highlight iodine residues. Intermediate range, non-bleeding, color-indexed pH indicator strips can be used to ascertain if acid/alkali residues are present. The pH of surfaces should generally be between 6 and 8 if little or no acids or bases are present, or if a cleanup has been effective.

**D. Sampling Strategy and Methodology**

HDOH requires that a WP be written that describes the assessment and cleanup approach. This document must be submitted for approval prior to any cleanup activities at the site. In general, the level of effort should be balanced to meet the need of the situation. For example, samples (in number, type, and location) will be collected sufficient to characterize the distribution of all contamination on all areas that could expose humans to the contamination under normal circumstances. Care must be taken to avoid too few samples (i.e., insufficient effort) or too many samples (i.e., redundant efforts); however, all potentially dangerous conditions must be evaluated. Basically, the level of effort can be attuned to the situation.

HDOH believes that assuming residual contamination is present when a “methamphetamine cook” has occurred is much more cost effective for the property owner and the cleanup contractor than spending money to prove contamination is not

present/dangerous via pre-sampling determinations. Money spent on pre-sampling events and evaluation is usually better spent towards the cleanup action and replacement of furnishings. A correctly implemented cleanup action removes, washes, and/or seals all contaminated surfaces to prevent risk of exposure. Confirmatory sample collection should be performed after the cleanup action is completed (except for screening samples, samples used for characterizing the distribution of contaminants, and those used to direct cleaning actions [e.g., VOCs in air, pH of surfaces, drug detection sprays, or spray starch for iodine detection]). Confirmatory sample collection confirms whether the cleanup response addressed all contamination sources, and therefore whether the cleanup action was successful. Confirmatory air samples must be acquired under normal HVAC operations from locations that exhibited the highest screening detections. Surface samples must be taken from surface areas that were not replaced and must target areas that exhibited the highest screening values or visual contamination noted during the inspection. The number of confirmatory samples to determine compliance is left to the “Best Professional Judgment” of the Certified Industrial Hygienist (CIH) or qualified environmental professional employed to certify the living space as “Safe for Human Use.” The rationale for the number of samples taken and their locations should be included in the WP and presented in the final report as evidence. Procedures for collecting wipe samples are in Appendix C. Information regarding data usability is in Appendix D.

E. Final Report

The final report is a document that reports the work performed, as outlined in the approved WP, as addressed in the HEER Office TGM. This document must describe the cleanup process in sufficient detail to verify that the contamination has been removed. The following important information must be included: (1) sample results, (2) comparison of the results with standards for cleanup, (3) interpretation of the results such that the data justify the belief that the cleanup has met all HEER Office cleanup standards, and (4) all supporting data and information for the cleanup activities performed. Other information should be included that is required by the HEER Office TGM.

F. No Further Action (NFA) Determination

If HDOH determines the final report verifies that the cleanup effort has remediated the property in accordance with this plan, and if the HEER Office verifies that the cleanup has met the requirements of the State of Hawaii, HDOH shall issue a NFA determination. However, if new information subsequently is discovered that changes the HDOH NFA determination, the case shall be reconsidered and possibly reassessed at the owner's expense.

**SECTION 6: OUTDOOR ENVIRONMENTAL CLEANUP**

Waste generated and disposed of on site can contaminate surrounding soil and groundwater. Approximately 5 pounds of waste is produced for every 1 pound of meth produced. The following material is consistent with the HEER Office TGM and the SCP, as described in HAR Chapter 11-451, authorized by HRS 128D, the Environmental Response Law. General oversight for the cleanup of these sites will be provided by the HEER Office when interacting with contractors or property owners to ensure that the cleanup process meets all state requirements. Contaminated soil or water removed from the site must be characterized (e.g., via Toxicity Characteristic Leachate Procedure [TCLP]) to determine if it contains a characteristic or listed hazardous waste. When a RCRA waste is present on site, it must be disposed of at an appropriately licensed solid or hazardous waste disposal facility. Analysis should be based on the lab site chemical inventory and manufacturing method used. All areas of soil, surface water, or groundwater contamination present must be characterized, and cleanup of these areas should be conducted by a professional environmental contractor, in consultation with the HEER Office.

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#### **1. Purpose**

To establish procedures for cleanup of contaminated soil, surface water, and groundwater from production of meth that are consistent with the HEER Office TGM and the SCP, as described in HAR Chapter 11-451, authorized by HRS 128D, the Environmental Response Law.

#### **2. Policy**

To provide for complete and safe cleanup of all soil, surface water, and groundwater contaminated by a clan meth laboratory so that the property meets all remediation goals set by the HEER Office TGM and the SCP, as described in HAR Chapter 11-451, authorized by HRS 128D, the Environmental Response Law.

#### **3. Pre-Cleanup Procedures**

A. Prior to any cleanup actions, the following activities must have occurred:

- All criminal investigations of the Crime Scene have been completed and permission for the HEER Office personnel to enter the property from the designated CLEO has been secured.
  - Initial Notification to the HEER Office has been made by the CLEO of the Hawaii Agency in charge of enforcement by a verbal and/or a written report describing the general situation of the site, buildings, and nature of contamination (e.g., list of contaminants).
  - All lab process-related chemicals, waste, and paraphernalia have been removed and documented by law enforcement (generally a DEA action) and its response contractors.
  - The property owner has contacted an environmental company that specializes in cleanup of contaminated sites.
  - The initial assessment and inspection of the quarantined property by the cleanup contractor has been performed (with HDOH oversight), appropriate PPE for cleanup workers has been selected, and the Hazard Assessment and Scope of Work have been completed and communicated to cleanup workers.
1. The initial assessment and inspection should have included diagrams of the site, lists of chemicals and equipment confiscated from the site, and other documents generated by law enforcement personnel.
  2. An initial walk through has exposed the contractor to the physical layout of the site and enabled the contractor to gather information and document locations and descriptions of exterior soil and surface water with visible signs of contamination.
  3. The following areas should have been inspected and information gathered based on law enforcement reports:
    - a. Diagrams of the site.

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- b. Areas where chemical reactions (i.e., cooking) occurred.
  - c. Areas where chemicals and equipment were stored.
  - d. Areas where chemicals and waste were disposed of.
  - e. Quantities and types of chemicals found and confiscated on site.
  - f. Method used to produce the meth.
- B. Once the preceding procedures have been completed, a cleanup plan should be developed and submitted to the HDOH for approval.

When contamination is suspected in areas around the structure, the contractor must provide a general description (i.e., a WP) of where samples are to be collected and how much soil and water, if needed, will be collected. The WP lists the contaminants suspected, the methods for analysis of the samples, and the quality assurance and quality control approaches that will be appropriate for this effort, including laboratory data sheets (see HEER Office TGM). The WP must be presented to the HEER Office for approval prior to the start of field work.

#### **4. Cleanup Procedures**

- A. Field Investigation (see Section 4 of the HEER Office TGM)

The material in the TGM Section 4 should serve as a general guide. The HEER Office recognizes that the level of effort for a site depends on the site size, type of operations, and complexity of environmental conditions. Any site may require more or less specific information and sampling to adequately address areas of known or potential environmental concern. A WP, Field Sampling Plan (FSP), and Quality Assurance Project Plan (QAPP) must be developed to present all pertinent information to the HEER Office to complete an evaluation. Suggested formats for these documents are provided in the appendices of this TGM section.

- B. Sampling and Analytical Methods

All samples must be collected using professionally accepted equipment and methods. These are described in the HEER Office TGM, the American Society for Testing and Materials (ASTM) Phase II environmental site assessment documents, or EPA site investigation guidance documents. All samples must be prepared and analyzed in strict accordance with the methods described in the HEER Office TGM with approval of the HEER Office project manager.

- C. Remediation

The results of the site characterization effort and the desired cleanup goals will define the level of remediation that may be required. Outdoor contamination may be dealt with using one or more of the following measures: (1) waste removal, (2) site controls (e.g., capping), (3) drainage control, (4) monitoring, and (5) removal or treatment of contaminated soil, surface water, or groundwater.

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D. Soil Cleanup Levels

Soil cleanup levels for a limited number of chemical compounds associated with meth labs appear in Table 2. For compounds that do not have established cleanup levels, the support contractor for the property owner may propose an appropriate cleanup level for soil using either background concentration (for metals only), the method detection limit, or a risk-based concentration. The following website can be referenced to determine the proper cleanup levels for all chemicals based on the HEER Office requirements:  
<http://www.hawaii.gov/health/environmental/hazard/pdf/ealssurferexcel2003may2005.xls>

E. Groundwater Cleanup Levels

Groundwater assessments must be considered for any situation that suggests presence of a pathway (from the manufacturing or spillage of chemicals) to groundwater—e.g., stained soil or ponded water, or waste stored in barrels and tanks on site. Cleanup standards for groundwater may also be found in the website listed above in the “Soil Cleanup Levels” section. A list of the State’s groundwater standards for select compounds associated with meth labs is provided in Table 2. For any contaminants for which the State’s standards have not been established, the owner may choose from the following options:

- Use EPA’s Clean Water Act maximum contaminant levels (MCL) or maximum contaminant level goals (MCLG).
- Calculate a health-based drinking water standard using an MCL-equivalent methodology.

F. Surface Water Cleanup Levels

If activities have resulted in contamination of surface water, the remediation goal should be the most stringent of the following cleanup levels:

- The appropriate surface water standard, as established by the HDOH for that surface water body (HAR 11-54).
- A health-based concentration protective of human health using a drinking water exposure scenario (unrestricted use designation).
- A concentration protective of aquatic life or other wildlife found in the area should be developed by consultation with the HEER Office for determination of "safe" levels of contaminants not listed in the Environmental Action Level source G.

G. Final Approval of Cleanup

The results of this effort, as described in the WP, will be presented to the HDOH in an acceptable format (see the HEER Office TGM [see outline below] for review, evaluation, and approval). When the HDOH project manager determines that sufficient information has been collected and presented to verify that the site meets all HDOH cleanup requirements, a NFA letter will be provided to indicate that all "Appropriate Response Actions" have been completed.

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**Table 2**

**EALs**  
**For Selected Chemical Compounds**  
**Associated with Clandestine Methamphetamine Laboratories**

<b>Compound</b>	<b>Soil Remediation Objective</b>	<b>Groundwater Cleanup Standard</b>	<b>Soil Concentration Protective of Groundwater<sup>c</sup></b>	<b>Surface Water Cleanup Standard</b>
Acetone	1400 mg/kg	5500 µg/L	0.5 mg/kg	1500 mg/kg
Benzene	0.64 mg/kg	5.0 µg/L	0.22 mg/kg	46 mg/kg
Chloroform	0.22 mg/kg	100 µg/L	1.8 mg/kg	6200 mg/kg
Formic acid <sup>d</sup>	pH > 2	pH 6.5-8.5	-	-
Glacial acetic acid <sup>d</sup>	pH > 2	pH 6.5-8.5	-	-
Hydrochloric acid <sup>d</sup>	pH > 2	pH 6.5-8.5	-	-
Methyl ethyl ketone	2000 mg/kg	7000 µg/L	6.4 mg/kg	14000 mg/kg
Methylene chloride	9.2 mg/kg	4.3 µg/L	0.67 mg/kg	2200 mg/kg
Phosphoric acid <sup>d</sup>	pH > 2	4.7 µg/L	-	-
Sulfuric acid <sup>d</sup>	pH > 2	pH 6.5-8.5	-	-
Toluene	650 mg/kg	1000 µg/L	2.9 mg/kg	130 mg/kg
Lead <sup>a</sup>	400 mg/kg	15 µg/L	200 mg/kg	5.6 mg/kg
Mercury (elemental) <sup>a</sup>	13 mg/kg	2 µg/L	10 mg/kg	0.0025 mg/kg
Mercury (ionic compounds) <sup>b, d</sup>	23 mg/kg	2 µg/L	0.88 mg/kg	-

**Notes:**

- <sup>a</sup> Associated with phenyl-2-propanone (P2P) method only.  
<sup>b</sup> Ionic mercury compounds such as mercuric chloride (HgCl<sub>2</sub>).  
<sup>c</sup> Applies if impacted soil is near or in contact with groundwater or surface water.  
<sup>d</sup> Levels were not available from the Hawaii website, so standards were used from the State of Colorado.

**EAL** Environmental Action Level  
**mg/kg** Milligrams per kilogram  
**µg/L** Micrograms per liter

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**APPENDIX B - CONTAMINATION NOTIFICATION LETTER**

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**U. S. Department of Justice**  
Drug Enforcement Administration  
300 Ala Moana Blvd. 3-147  
Honolulu, HI, 96813

March 8, 2005

[REDACTED]  
[REDACTED]  
[REDACTED]

Dear Sir:

This letter was written to advise you, that as the legal owner/manager of the property at, [REDACTED], that on March 5, 2005 as a result of a search of your property pursuant to a federal search warrant, a clandestine drug laboratory was seized and/or hazardous chemicals were found there. Known hazardous chemicals, materials, and substances were seized by the Government and have been properly disposed of, pursuant to State and/or Federal laws.

This letter also serves as a warning that there may still be hazardous substances or waste products at or on your property. A copy of this letter will be forwarded to the State environmental agency and the County Public Health officials in your area.

Sincerely,

[REDACTED]  
Acting/Assistant Special Agent in Charge

cc: Hazard Evaluation Emergency Response Office  
919 Ala Moana Boulevard, Room #206  
Honolulu, Hawaii 96814

ASAC Chron

**APPENDIX C - WIPE SAMPLING PROTOCOL**

## AQUIRING SEMI-POROUS SURFACE WIPE SAMPLES

The sample method used to determine whether or not a structure is sufficiently clean of methamphetamine-related contaminants is called surface “wipe” sampling. Please note that all hard surfaces in homes or structures (e.g. ceilings, floor tile, walls, counter tops, shelving, appliances, etc.) should be considered semi-porous with respect to methamphetamine contamination. Porous surfaces such as carpet, drapes, most paneling, clothing, etc., cannot be sampled using this method. Good quality, absorbent wipes should be used when collecting methamphetamine wipe samples, especially when wiping rough surfaces. Wipes must be wetted with a wetting agent to enhance collection efficiency. The current approved wetting agent for collection of methamphetamine samples is methanol.

The following sample acquisition procedure is recommended when collecting wipe samples at former clandestine methamphetamine labs:

- 1) Prepare a site sketch of the areas to be sampled, along with the rationale why each sample location was chosen. Recording a log of all activities occurring during the sampling event is also important. In addition, a photo-log of all sample locations and procedures should be recorded. Make sure photos show sample locations inside the room relative to other items for later identification, not just the sample locations themselves with no other items around them. This step is critical, because it is one of the primary reference documents that could be challenged in court if a property goes through litigation.
- 2) Position a clean, good quality metal or stiff paper (100-square centimeter [cm<sup>2</sup>] template) over the area to be sampled. Lightly mark the surface to be sampled at the corners of the template with a pencil. Remove and wipe template with clean dry wipes prior to repositioning it over the next sample location. Use 2-inch-wide painters tape to outline the 100-cm<sup>2</sup> area on the surface where the pencil marks were made. Use a permanent marker to label the outlined area at the upper right edge of the 2-inch-wide painters tape with the sample location identifier. Good Quality 100-cm<sup>2</sup> templates are also acceptable.
- 3) Co-locate moistened, intermediate range, non-bleeding, color-indexed pH indicator strips near sample areas. It is best to place pH strips to the side of sample areas so they do not interfere with wipe tests. Moisten pH strips with neutral de-ionized water. Apply moist pH paper to surface, allow time for reaction (up to 1 minute), and read pH strip while still moist. Make sure all pH strips remain in the neutral color index before placing them on surfaces. The pH test can be a good indicator of where active cooking may have occurred within a structure. Record the pH reading in field book along with sample location ID number. These pH strips must have a minimum sensitivity of 0.3 to 0.5, and be able to measure a pH range of from 2 to 9. NOTE: Do not drown a surface area with water and then place the pH strip in the puddle. This method will over buffer a surface area and yield an inaccurate reading.
- 4) Prior to taking any 100-cm<sup>2</sup> wipe sample, a new set of clean, impervious, protective gloves must be worn to prevent/limit the potential for cross-contamination of a sample from previous sample locations. This step also serves to protect the sampler from exposure to contaminants and wetting agents. Ensure that the gloves are chemically compatible with acids and other suspected chemicals.
- 5) After all sample location preparation has been completed, begin wipe sample acquisition. With a cleaned gloved hand, withdraw wipes from package and place on a clean surface. One wipe is used per each 100-cm<sup>2</sup> location. Fold wipe into ¼ size and moisten the wipe with methanol by pouring it onto the wipe. The wipe should not be dripping with methanol, but moistened sufficiently to collect a representative sample. Wring or squeeze out any excess wetting agent.

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Under and/or over saturating the wipe with the wetting agent may prevent acquisition of a true representative sample. Practice this technique before actual sampling.

- 6) Firm pressure should be applied when wiping a surface. With a rolling-up wiping motion, start at an outside upper edge and begin wiping around, along, and down the edge towards the central portion of the surface area. When done correctly, this wiping motion allows you to capture almost half the surface area in a single pass. Repeat this motion on the un-wiped portion of the sample area. Fold the wipe over to expose clean inner surface and repeat this process once. Remember this is a wipe sample so do not to use a scrubbing motion on the surface area. Remember to remain inside the outlined 100-cm<sup>2</sup> area. A slight overrun of the 100-cm<sup>2</sup> area onto painters tape will not affect sample results. Do not under sample the 100-cm<sup>2</sup> area. This technique needs to be practiced before attempting to acquire samples in the field.
- 7) Without allowing the wipe to come into contact with any other surface, place the wipe into the sample container, cap, properly label it with the location number, and note the number of the sample location on the sketch and on sample container. Place a legal/custody seal on the sample container. Include notes with the sketch giving any further description of the sample. If this is a composite sample, all wipes for that composite sample must be placed into the same sample container prior to placing legal seal onto the container.
- 8) At least one field blank wipe, moistened with solvent, but without wiping, should be submitted for every 20 samples for quality control purposes. Do not note that sample is a field blank on lab submittal sheet.
- 9) Complete chain-of-custody forms, lab sheets, and field notebook. Pack cooler with sufficient ice to maintain a temperature of 32 degrees Fahrenheit during shipment. Two large, sealable, poly bags are sufficient to keep samples cool during transport in small coolers. Double-bag ice to prevent leakage during shipment. Sample containers should be wrapped in bubble wrap to prevent breakage during transport. Use bubble wrap or packing peanuts to fill up empty spaces in the cooler. Send samples via an overnight shipper.

**APPENDIX D - DATA USABILITY**

## Data Usability

1) Data usability and evaluation.

Testing for methamphetamine and determining whether a property is “safe for human use” requires use of hard data and simple statistics. Averages of concentration among composite wipe samples must be calculated and compared to standards. Discreet/grab samples of certain areas are also frequently taken.

2) Discreet/grab samples.

Discreet samples are those taken of a single area designated with a template and compared to a standard. In discreet sampling, only one wipe is used to sample a single 100-square centimeter ( $\text{cm}^2$ ) area, and is then analyzed. The results are reported as the amount collected per 100  $\text{cm}^2$ .

Discreet samples should be taken of areas of frequent contact such as switch plates, doors, kitchen or bathroom counters, or any surface where people are likely to place hands.

3) Composite samples.

Composite samples can be used advantageously when considering similar areas (e.g., single rooms or areas such as table and counter tops) that were expected to have similar activity (e.g., cooking, using, storing, etc). Composite samples provide the average value, whereas single samples suggest a possible maximum or minimum (e.g., range) of the observed concentrations. Composite samples are taken of several areas designated by 100- $\text{cm}^2$  templates and analyzed together to produce a single result. In composite sampling, up to four wipes from four different templates can be analyzed together. Each template must be used only once, with a separate wipe and set of gloves for each 100- $\text{cm}^2$  area of the composite. When results are reported, they are corrected to the total surface area of the entire composite.

As an example, if a room is small, one composite sample may suffice to determine the cleanliness of that room. Four 100- $\text{cm}^2$  templates could be placed on the walls and floor of the room. Individual wipes for each template would be taken and placed into the same sample container. The lab would extract the methamphetamine from all wipes and report the total extracted. If the lab reported a total of 0.2 micrograms ( $\mu\text{g}$ ) extracted from the four wipes, the corrected result for four 100- $\text{cm}^2$  templates would be 0.05  $\mu\text{g}/100 \text{ cm}^2$ , a passing result. That room could be considered cleaned. If however, the result was greater than 0.1  $\mu\text{g}/100 \text{ cm}^2$ , the room would have to be cleaned again.

4) A representative sample.

How many samples are necessary to adequately address a residence? This is one of the most important questions for a hygienist to answer. A small room (12 x 12 feet) may need only one four-point composite sample. A larger room (14 x 25 feet) may need three four-point composites. Each room usually needs testing. Discreet samples should be taken of anything that seems to have a high probability of contact (i.e., eating areas, food storage areas, or any other area to which people are drawn or exposure is likely).

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5) Detection limits.

Detection limits should be documented by the analytical lab and provided along with the results. A result of "non-detect" is not acceptable proof of a successful cleanup if detection limits are greater than the standards for cleanup.

6) Calibration

Photo-ionization detectors (PID) and other analytical or screening equipment need periodic calibration. This should be done according to the manufacturer's specifications and reported along with any results obtained from that equipment. The expiration dates of any calibration standards such as span gas should be reported as well.

7) Background.

In some areas, especially near industrial facilities, a baseline or "background" of VOCs may exceed the 1-part-per-million (ppm) standard. In such areas, document outside air conditions with a properly calibrated instrument. Document areas of the structure being tested where readings for VOCs are highest and lowest, and what those readings are. Clean any areas that appear to be above background. When household VOCs are within 1 ppm of background, the structure is considered cleaned to standard.

Remember also that gasoline and power equipment, as well as adhesives, paint, dry-cleaned clothing, solvents, and other volatile household chemicals, should be removed a considerable time before this evaluation because of the probability of these contributing to background VOCs.

8) Results vs. Standards.

If the concentration of methamphetamine from the wipe samples is less than  $0.1 \mu\text{g}/100 \text{ cm}^2$ , the standard has been met. If a room has a corrected composite sample exceeding  $0.1 \mu\text{g}/100 \text{ cm}^2$ , that room will need to be cleaned and retested without testing the rest of the building.

In a composite sample, the concentration must be corrected for the surface area of the wipe samples. If a composite sample consists of three wipes taken from three  $100\text{-cm}^2$  templates, and the result totals  $0.6 \mu\text{g}$  of methamphetamine, the result is  $0.2 \mu\text{g}/100 \text{ cm}^2$ . Be sure that the analytical lab results are clear, and this point is not confused so as to incorrectly report a sample too high or too low.

9) Chain of Custody and Sample Preservation.

Chain of custody, sample temperature, and shipping information are important pieces of documentation. They show that samples were shipped with care and that the proper holding temperatures were maintained during shipment. Results of samples collected without this information become suspect.

**APPENDIX E - RECOMMENDED METHAMPHETAMINE CLEANUP RESOURCES**

HDOH – HEER Office  
*Interim Clandestine Laboratory Guidelines and Procedures*

To assist property owners and cleanup contractors in furthering their understanding of potential hazards associated with clandestine laboratories (CDL), the following Uniform Resource Locators (URL) are provided as additional resources. The Hawaii Department of Health (HDOH) strongly suggests that property owners and cleanup contractors review these resources before undertaking cleanup responses.

KCI, *The Anti-Meth Site*

[http://www.kci.org/meth\\_info/links.htm](http://www.kci.org/meth_info/links.htm)

National Jewish Medical and Research Center

<http://nationaljewish.org/>

Keyword: methamphetamine

Washington State Department of Health

<http://www.doh.wa.gov/ehp/ts/CDL/default.htm>

Colorado Department of Health and Environment

<http://www.cdphe.state.co.us/hm/methlab.pdf>

<http://www.cdphe.state.co.us/hm/methlabfactsheet.pdf>

Minnesota Department of Health

<http://www.health.state.mn.us>

Keyword: methamphetamine